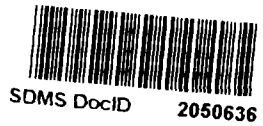
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
ENVIRONMENTAL SCIENCE CENTER
701 MAPES ROAD
FORT MEADE, MD 20755-5350



DATE : March 27, 2003

SUBJECT: Region III Data QA Review

FROM : Fredrick Foreman
Region III ESAT RPO (3ES20)

TO : Mitch Cron
Regional Project Manager (3HS22

Attached is the organic data validation report for the Bally Ground Water Contamination site (Case #: 31467, SDG#: C[illegible]N6) completed by the Region III Environmental Services Assistance Team (ESAT) contractor under the direction of Region III ESD.

If you have any questions regarding this review, please call me at (410) 305-2629.

Attachments

cc: Marian Murphy (TETRATECH EMI)

TO File #: 0007 TDF#: 0346

OFFICE OF ANALYTICAL SERVICES AND QUALITY ASSURANCE

AR300004

Lockheed Martin Environmental Services
US EPA Environmental Science Center
701 Mapes Road Ft. Meade, MD 20755-5350
Telephone 410-305-3037 Facsimile 410-305-3597

LOCKHEED MARTIN

DATE: March 26, 2003

SUBJECT: Level M3 Organic Data Validation for Case 31467
SDG: C00N6
Site: Bally Ground Water Contamination

FROM: Hoang Nguyen
Organic Data Reviewer

Mahboobeh Mecanic
Senior Organic Data Reviewer

TO: Fredrick Foreman
ESAT Regional Project Officer

OVERVIEW

Case 31467, Sample Delivery Group (SDG) C00N6 from the Bally Ground Water Contamination site, consisted of fourteen (14) aqueous samples submitted to CompuChem (LIBRTY) for low concentration determination of 1,4-Dioxane. The sample set included three (3) trip blanks and one field duplicate pair. Samples were analyzed in accordance with Contract Laboratory Program (CLP) Statement of Work (SOW) OLC03.2 with a flexible clause using single ion monitoring (SIM) through the Routine Analytical Services (RAS) program. SIM technique was employed to achieve the required detection limit of 1.0 ug/L for 1,4-Dioxane.

SUMMARY

Data were validated according to Region III Modifications to the National Functional Guidelines for Organic Data Review, Level M3. 1,4-Dioxane was detected in all samples and blanks analyzed for this Case.

MINOR PROBLEM

- The response factors (RF) for 1,4-dioxane was less than 0.05 in the initial and continuing volatile calibrations performed. Positive results reported were qualified "L" unless superseded by "B" on the Data Summary Form (DSF). It should be noted that the response factor did meet the requirement of 0.01 as specified in the flex clause contract.

NOTES

- 1,4-Dioxane was detected in all method, storage and trip blanks associated with this Case. Samples with concentrations of this compound less than five times (<5X) blank concentration have been qualified "B" as listed below. Units are in ug/L.

Blank	Compound	Concentration	Associated Samples
Method (VBLKDF)	1,4-Dioxane	0.31 J	C00N7, C00P9, C00Q1, C00Q2, C00Q3, C00Q4, C00Q5

Blank	Compound	Concentration	Associated Samples
Trip (C00N7)	1,4-Dioxane	0.37 B	C00N8
Trip (C00P9)	1,4-Dioxane	0.34 B	C00P0, C00P1

- The only preservation used for these samples was ice to maintain temperature at 4°C(± 2°C). Samples were analyzed seven (7) to eight (8) days from collection, within the required holding time of fourteen (14) days from collection for non-aromatic compounds. No action was taken by the reviewer.
- Tentatively Identified Compounds (TICs) were not performed for any samples in this Case.
- Matrix spike and matrix spike duplicate (MS/MSD) were not analyzed as per Region's directive. As a result, no precision comparison could be made.
- The "J" qualifier for 1,4-Dioxane detected below Contract Required Quantitation Limits (CRQLs) was superseded by "B" on Data Summary Forms.

All data for Case 31467, SDG C00N6, were reviewed in accordance with Level M3 Innovative Approaches for Validation of Organic Data, Region III, June 1995.

ATTACHMENTS

1) Appendix A Glossary of Data Qualifier Codes
2) Appendix B Data Summary Forms
3) Appendix C Chain-of-Custody Records
4) Appendix D Laboratory Case Narrative

DCN: 31467.wpd

Appendix A

Glossary of Data Qualifiers

GLOSSARY OF DATA QUALIFIER CODES (ORGANIC)

CODES RELATED TO IDENTIFICATION

(confidence concerning presence or absence of compounds)

U = Not detected. The associated number indicates approximate sample concentration necessary to be detected.

NO CODE = Confirmed identification.

B = Not detected substantially above the level reported in laboratory or field blanks.

R = Unusable result. Analyte may or may not be present in the sample. Supporting data necessary to confirm result.

N = Tentative identification. Consider present. Special methods may be needed to confirm its presence or absence in future sampling efforts.

CODES RELATED TO QUANTITATION

(can be used for both positive results and sample quantitation limits):

J = Analyte present. Reported value may not be accurate or precise.

K = Analyte present. Reported value may be biased high. Actual value is expected to be lower.

L = Analyte present. Reported value may be biased low. Actual value is expected to be higher.

UJ = Not detected, quantitation limit may be inaccurate or imprecise.

UL = Not detected, quantitation limit is probably higher.

OTHER CODES

NJ = Qualitative identification questionable due to poor resolution. Presumptively present at approximate quantity.

Q = No analytical result.

Appendix B

Data Summary Forms

DATA SUMMARY FORM: VOLATILES Page _1__ of _1__

Case #: 31467 SDG : C00N6 Number of Soil Samples : 0
Site : BALLY GROUND WATER CONTAMINATION Number of Water Samples : 14
Lab. : LIBRTY

Sample Number :	C00N6		C00N7		C00N8		C00N9		C00P0	
Sampling Location :	MW-92-17		TB-02		MW-2		MW-92-18I		MW-92-19I	
Field QC:			Trip Blank						Dup. (C00P1)	
Matrix :	Water		Water		Water		Water		Water	
Units :	ug/L		ug/L		ug/L		ug/L		ug/L	
Date Sampled :	02/26/2003		02/26/2003		02/26/2003		02/27/2003		02/27/2003	
Time Sampled :	15:10		09:00		11:30		13:40		08:15	
pH :	7		7		7		7		7	
Dilution Factor :	1.0		1.0		1.0		1.0		1.0	
Volatile Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
1,4-Dioxane	2.4		0.37	B	0.43	B	2.8	L	0.52	B

Case #: 31467 SDG : C00N6
Site : BALLY GROUND WATER CONTAMINATION
Lab. : LIBRTY

Sample Number :	C00P1		C00P2		C00P3		C00P9		C00Q1	
Sampling Location :	MW-92-19ID		MW-92-20I		MW-92-23I		TB-03		RW[redacted]	
Field QC:	Dup. (C00P1)						Trip Blank			
Matrix :	Water		Water		Water		Water		Water	
Units :	ug/L		ug/L		ug/L		ug/L		ug/L	
Date Sampled :	02/27/2003		02/27/2003		02/27/2003		02/27/2003		02/28/2003	
Time Sampled :	08:18		09:55		15:10		08:00		09:40	
pH :	7		7		7		7		7	
Dilution Factor :	1.0		1.0		1.0		1.0		1.0	
Volatile Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
1,4-Dioxane	0.71	B	2.4	L	17	L	0.34	B	0.37	B

Case #: 31467 SDG : C00N6
Site : BALLY GROUND WATER CONTAMINATION
Lab. : LIBRTY

Sample Number :	C00Q2		C00Q3		C00Q4		C00Q5			
Sampling Location :	RW-[redacted]		RW[redacted]		RW[redacted]		TB-04			
Field QC:							Trip Blank			
Matrix :	Water		Water		Water		Water			
Units :	ug/L		ug/L		ug/L		ug/L			
Date Sampled :	02/28/2003		02/28/2003		02/28/2003		02/28/2003			
Time Sampled :	09:18		08:35		09:05		07:30			
pH :	7		7		7		7			
Dilution Factor :	1.0		1.0		1.0		1.0			
Volatile Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
1,4-Dioxane	1.4	B	1.0	B	0.30	B	0.30	B		

CRQL = Contract Required Quantitation Limit *Action Level Exists SEE NARRATIVE FOR CODE DEFINITIONS
To calculate sample quantitation limits: (CRQL * Dilution Factor) Revised 09/99

AR300010

Appendix C

Chain of Custody Records

31467

U.S. EPA Region III Sample Scheduling Request Form

RAS CASE No: CT1692 31467	DAS No:		NSF No:
Date: February 21, 2003	Data Validation Level: M3		EPA Lab Reply:
Site Name: Bally Ground Water Contamination			Cost:
Address: Route 100 20 N. Third Street	City: Bally, Berks County		State: PA
Latitude: 40.398400° north	Longitude: 75.593300° west		Anal +Val Data TAT:28 days
Program: Superfund	CERCLIS No: PAD061105128		Activity: GM Groundwater Monitoring
Account No: 03T03N50102D03J5LA00	Operable Unit:		Spill ID:
Preparer: Marian Murphy	RPM/PO:Mitch Cron (3HS22)		Site Leader: Marian Murphy
Phone: 610-364-2129	Phone: 215-814-3286		Phone: 610-364-2129
FAX: 610-485-8587	FAX: 215-814-3002		FAX: 610-485-8587
E-mail: marian.murphy@ttemi.com	E-mail: cron.mitch@epa.gov		E-mail: marian.murphy@ttemi.com
EPA CO: Deborah Eble	Contract Type: START 3 Eastern Area	Prime: Tetra Tech EM Inc.	Sub:
Lab Assignment Date:	Analytical TAT: 7 days with PRs		Ship Date From: 2/25/03
Organic Lab: LIBRTY			Ship Date To: 2/28/03
Inorganic Lab:			Carrier:

SAMPLES	METHOD	PARAMETER	MATRIX
15	OLC03.2	VOCs to include 1,4-dioxane at 1 ug/L Flex Clause	Ground Water

NOTE: Data validation levels M3 & IM2 require justification. QC field samples must be included as part of total number of samples.

1. Special Instructions: Provide preliminary results (PRs) to RPM Mitch Cron at the above e-mail address in 7 days (or less if possible).
2. Objectives / Project Plan ID / Permit ID: Ground water monitoring.
3. Program / Project / Permit Reporting Limits 1 ug/L
4. DQO (QC Requirements) AS PER METHOD

LIBRTY

EPA USEPA Contract Laboratory Program
Organic Traffic Report & Chain of Custody Record

Case No: 31467
DAS No:

Region: 3	Date Shipped: 2/26/2003	Chain of Custody Record	Sampler Signature:
Project Code:	Carrier Name: FedEx	Relinquished By (Date / Time)	Received By (Date / Time)
Account Code:	Airbill: 838267719719	1 Jeanne Thompson 2/26/03 1700	
CERCLIS ID:	Shipped to: Liberty Analytical 501 Madison Avenue Cary NC 27513 (919) 379-4100	2	
Spill ID:		3	
Site Name/State: Bally Groundwater Contamin. Site/PA		4	
Project Leader: Jeanne Thompson			
Action: Ground Water Monitoring (Post Rod)			
Sampling Co:			

ORGANIC SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE	STATION LOCATION	SAMPLE COLLECT DATE/TIME	INORGANIC SAMPLE No.	QC Type
C00N6	Ground Water/ Jeanne Thompson	L/G	1,4-Dioxan (7)	377 (Ice Only), 378 (Ice Only), 379 (Ice Only) (3)	MW-92-17	S 2/26/2003 15:10		
C00N7	Ground Water/ Jeanne Thompson	L/G	1,4-Dioxan (7)	380 (Ice Only), 381 (Ice Only), 382 (Ice Only) (3)	TB-02	S 2/26/2003 9:00		Trip Blank
C00N8	Drinking Water/ Jeanne Thompson	L/G	1,4-Dioxan (7)	383 (Ice Only), 384 (Ice Only), 385 (Ice Only) (3)	MW-2	S 2/26/2003 11:30		

rec'd 3/10/03 LDP C00N6

MAR 2003
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AR300013

Shipment for Case Complete? N	Sample(s) to be used for laboratory QC:	Additional Sampler Signature(s):	Chain of Custody Seal Number:
Analysis Key:	Concentration: L = Low, M = Low/Medium, H = High	Type/Designate: Composite = C Grab = G	Shipment Iced? _____
1,4-Dioxan = 1,4-Dioxane			

TR Number: 3-190177755-022603-0001

PR provides preliminary results. Requests for preliminary results will increase analytical costs.

Send Results to: Contract Laboratory Analytical Services Support, 2000 Edmund Halley Dr., Reston, VA 20191-3436 Phone 703/264-9348 Fax 703/264-9222

REGION III

EPA Form 9066 Page 1 of 1

EPA USEPA Contract Laboratory Program
Organic Traffic Report & Chain of Custody Record

Case No: 31467
DAS No:
R

Region: 3	**Date Shipped:** 2/27/2003	**Chain of Custody Record**	**Sampler Signature:**
Project Code:	**Carrier Name:** FedEx	**Relinquished By** (Date / Time)	**Received By** (Date / Time)
Account Code:	**Airbill:** 838267719720	1 Jeanne Thompson 2/27/03 1830	
CERCLIS ID:	**Shipped to:** Liberty Analytical 501 Madison Avenue Cary NC 27513 (919) 379-4100	2	
Spill ID:		3	
Site Name/State: Bally Groundwater Contamin. Site/PA		4	
Project Leader: Jeanne Thompson			
Action: Ground Water Monitoring (Post Rod)			
Sampling Co:			

ORGANIC SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE	STATION LOCATION	SAMPLE COLLECT DATE/TIME	INORGANIC SAMPLE No.	QC Type
C00N8 ✓	Ground Water/ Jeanne Thompson	L/G	1,4-Dioxan (7)	386 (Ice Only), 387 (Ice Only), 388 (Ice Only) (3)	MW-92-18I	S: 2/27/2003 13:40		--
C00P0 ✓	Ground Water/ Jeanne Thompson	L/G	1,4-Dioxan (7)	389 (Ice Only), 390 (Ice Only), 391 (Ice Only) (3)	MW-92-19I	S: 2/27/2003 8:15		--
C00P1 ✓	Ground Water/ Jeanne Thompson	L/G	1,4-Dioxan (7)	392 (Ice Only), 393 (Ice Only), 394 (Ice Only) (3)	MW-92-19ID	S: 2/27/2003 8:18		Field Duplicate of MW-92-19I
C00P2 ✓	Ground Water/ Jeanne Thompson	L/G	1,4-Dioxan (7)	395 (Ice Only), 396 (Ice Only), 397 (Ice Only) (3)	MW-92-20I	S: 2/27/2003 9:55		--
C00P3 ✓	Ground Water/ Jeanne Thompson	L/G	1,4-Dioxan (7)	398 (Ice Only), 399 (Ice Only), 400 (Ice Only) (3)	MW-92-23I	S: 2/27/2003 15:10		--
C00P9 ✓	Ground Water/ Jeanne Thompson	L/G	1,4-Dioxan (7)	422 (Ice Only), 423 (Ice Only), 424 (Ice Only) (3)	TB-03	S: 2/27/2003 8:00		Trip Blank

rec'd 3/10/03 LAP C00N6

MAR 2003
RECEIVED

AR300014

Shipment for Case Complete? N	**Sample(s) to be used for laboratory QC:**	**Additional Sampler Signature(s):**	**Chain of Custody Seal Number:**
Analysis Key:	**Concentration:** L = Low, M = Low/Medium, H = High	**Type/Designate:** Composite = C, Grab = G	**Shipment Iced?**_____
1,4-Dioxan = 1,4-Dioxane			

TR Number: 3-190177755-022703-0001

Requests for preliminary results will increase analytical costs.

REGION COPY

EPA USEPA Contract Laboratory Program
Organic Traffic Report & Chain of Custody Record

Case No: 31467 **R**
DAS No:

Region: 3 Project Code: Account Code: CERCLIS ID: Spill ID: Site Name/State: Bally Groundwater Contamin. Site/PA Project Leader: Jeanne Thompson Action: Ground Water Monitoring (Post Rod) Sampling Co:	Date Shipped: 2/28/2003 Carrier Name: FedEx Airbill: 838267719730 Shipped to: Liberty Analytical 501 Madison Avenue Cary NC 27513 (919) 379-4100	**Chain of Custody Record** Relinquished By (Date / Time) 1 Jeanne Thompson 2/28/03 1330 2 3 4	Sampler Signature: Received By (Date / Time)

ORGANIC SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE	STATION LOCATION	SAMPLE COLLECT DATE/TIME	INORGANIC SAMPLE No.	QC Type
C00Q1 ✓	Drinking Water/ Jeanne Thompson	L/G	1,4-Dioxan (7)	428 (Ice Only), 429 (Ice Only), 430 (Ice Only), 431 (Ice Only), 432 (Ice Only), 433 (Ice Only), 434 (Ice Only), 435 (Ice Only), 436 (Ice Only) (9)	RW-[redacted]	S: 2/28/2003 9:40		MS/MSD
C00Q2 ✓	Drinking Water/ Jeanne Thompson	L/G	1,4-Dioxan (7)	437 (Ice Only), 438 (Ice Only), 439 (Ice Only) (3)	RW-[redacted]	S: 2/28/2003 9:18		--
C00Q3 ✓	Drinking Water/ Jeanne Thompson	L/G	1,4-Dioxan (7)	440 (Ice Only), 441 (Ice Only), 442 (Ice Only) (3)	RW-[redacted]	S: 2/28/2003 8:35 (set)		--
C00Q4 ✓	Drinking Water/ Jeanne Thompson	L/G	1,4-Dioxan (7)	443 (Ice Only), 444 (Ice Only), 445 (Ice Only) (3)	RW-[redacted]	S: 2/28/2003 9:05		--
C00Q5 ✓	Drinking Water/ Jeanne Thompson	L/G	1,4-Dioxan (7)	446 (Ice Only), 447 (Ice Only), 448 (Ice Only) (3)	TB-04	S: 2/28/2003 7:30		Trip Blank

Rec'd 3/10/03 LDP

C00N6

AR300015

MAR 2003 RECEIVED

Shipment for Case Complete? Y	Sample(s) to be used for laboratory QC: C00Q1	Additional Sampler Signature(s):	Chain of Custody Seal Number:
Analysis Key:	Concentration: L = Low, M = Low/Medium, H = High	Type/Designate: Composite = C, Grab = G	Shipment Iced?__________
1,4-Dioxan = 1,4-Dioxane			

TR Number: 3-190177755-022803-0001

REGION COPY

PR provides preliminary results. Requests for preliminary results will increase analytical costs.
Send Copy to: Contract Laboratory Analytical Services Support, 2000 Edmund Halley Dr., Reston, VA. 20191-3436 Phone 703/264-9348 Fax 703/264-9222

Appendix D

Laboratory Case Narratives

CompuChem

a division of Liberty Analytical Corporation
501 Madison Avenue
Cary, N.C. 27513
Tel: 919/379-4100 Fax: 919/379-4050

SDG NARRATIVE
CASE #31467
SDG #C00N6
CONTRACT # 68W01043
FLEX CLAUSE R3024003

SAMPLE IDENTIFICATIONS: C00N6 C00N7 C00N8 C00N9 C00P0 C00P1 C00P2 C00P3 C00P9 C00Q1 C00Q2 C00Q3 C00Q4 C00Q5

The fourteen water samples listed above were received intact, at 1.5, and 3.0 degrees C, with documentation, in sealed shipping containers on February 27, and 28, and March 01, 2003. All samples were submitted for volatile only analysis, and were prepared and analyzed following Contract Laboratory Program(CLP) Statement of Work(SOW), document OLC03.2 under a Flexibility Clause R3024003 analyzing for 1,4-dioxane by Selective Ion Monitoring(SIM). All pertinent Quality Assurance Notices are included in the narrative section, and all pertinent Laboratory Notices for Case # 31467 SDG # C00N6 are included in the sample data sections. All pH values were measured at greater than 2.0, and a copy of the pH results are included in the narrative section. Analysis holding time requirements were met for all samples.
The laboratory received three samples on 02/27/2003 which were requested for SIM only, however subsequent samples received on 02/28/2003 were submitted for full VOA analysis with 7 day TAT with PRs. Additionally the TR requested QC, but the Scheduling Notification Form(SNF) indicated no QC was required. SMO was contacted for clarification, and informed the lab that for case 31467 that 1,4-dioxane was the only anlaysis required, and that Region III does not require QC for OLC03.2. SMO also requested that the lab e-mail PRs with the case number in the subject line, and that PRs greater than ten pages should be Fedexed overnight. A copy of the appropriate e-mail accompanies this narrative.

The example calculation with all relavent formulae are found in a sheet immediately following this narrative.

The requested Target Compound List(TCL) analyte 1,4-dioxane was identified above the Contract Required Quantitation Limit(CRQL) in the majority of samples.

Overall QC criteria were met for the initial, and continuing calibration standard(s) associated to this SDG

The deuterated monitoring compound (DMC) met recovery criteria in the analyses of these samples, and the internal standard met retention time and response criteria in the analyses of these samples.

The associated method blank, and storage blank met all quality control criteria, and did not contain 1,4-dioxane above the CRQL.

No duplicate matrix spikes were generated per client request.

Manual quantitations were performed on some of the process files in the associated initial and continuing calibrations, and in all samples. The reasons have been coded with explanations provided in the notice included in the narrative section of this SDG.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package, and in the computer-readable data submitted on diskette has been authorized by the Laboratory Manager or his/her designee, as verified by the following signature.

Roy Button
Case Reviewer
March 07, 2003

SDG #C00N6

Example Calculation for the Volatile Fraction

Calculation of RRF

RRF=(Ax*Cis)/Ais *Cx)

Where: **Ax=Area of the characteristic ion(EICP) for the compound to be measured**
Ais= Area of the chracteristic ion(EICP) for the specific internal standard
Cis= Concentration of the internal standard
Cx=Concentration of the compound to be measured

Example: 1,4-DIOXANE RRF from CS030306B71(21:13)
Ax=475
Ais=7594 **RRF=(475*25)/(7594*125)**
Cis=25 **= 0.0125**
Cx=125

Calculation of Concentration:
Concentration(ug/L)= (Ax*Is*Df)/(Ais*RRF*Vo)
Where: Ax= Area of the characteristic ion(EICP) for the compound to be measured
Ais=Area of the characteristic ion(EICP) for the internal standard
Is=Amount of the internal standard added in nanograms
RRF= The relative response factor from the continuing calibration standard
Vo=Total volume of water purged, in milliliters
Df=Dilution factor

Example: Concentration of 1,4-dioxane in C00P9

Ax= 32 Concentration = (32*25*1.0)/(7510*0.0125*25)
Ais= 7510 = 0.340
Is= 25 = 0.3
RRF= 0.0125
Vo= 25
Df= 1.0